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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,913	10/30/2003	Teck Heng Lee	1138.P014/CKM/cch	5647
38556	7590	09/27/2004	EXAMINER	
LAWRENCE Y.D. HO & ASSOCIATES PTE LTD 30 BIDEFORD ROAD, #07-01, THONGSIA BUILDING SINGAPORE, 229922 SINGAPORE			WALLING, MEAGAN S	
			ART UNIT	PAPER NUMBER
			2863	

DATE MAILED: 09/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/695,913

Applicant(s)

LEE, TECK HENG

Examiner

Meagan S Walling

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 9, 13 and 20-22 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 7, 8, 10-12 and 14-19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 2, 3, 6, 9, 13, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Paradie et al. (US 2003/0128153).

Regarding claim 2, Paradie et al. teaches at least two sensors at fixed intervals between each other in at least one sensor arrangement (Fig. 3, Ref. 301, 303, 305, and 307); at least one processor (Fig. 3, Ref. 309); and at least one outcome device (Fig. 3, Ref. 313); wherein at least two sensors sending input signals to the at least one processor (see paragraph 33); the at least one processor analyzing input signals from pairs of adjacent sensors from the at least one sensor arrangement (see paragraph 33); the at least one processor sending output signals to the at least one outcome device (see paragraph 33); the at least one outcome device performing at least one action according to a set of predetermined rules (see paragraph 33).

Regarding claim 3, Paradie et al. teaches receiving input signals from a series of at least two sensors set at a fixed distance relative to each other (see paragraph 33), the processor capable of processing the input from pairs of the sensors (see paragraph 33), the processor able to treat either sensor of the sensor pair as the first or second sensor of the pairs of sensors,

analyzing the signals from the sensor pairs to sense objects in motion along the series of sensors (see paragraph 26).

Regarding claim 6, Paradie et al. teaches receiving signals from the sensors as the object passes by each of the sensors (see paragraph 33), processing signals from pairs of sensors (Fig. 3, Ref. 301, 303, 305, and 307), analyzing states of signals with respect to time to determine speed, direction (see paragraph 28), position (see paragraph 44), and size (see paragraph 32) of the object, each sensor acting simultaneously as the second sensor for a sensor pair and as the first sensor for the next sensor pair (see Fig. 3, Ref. 303 and 305), except for the first (Ref. 301) and last (Ref. 307) sensor in the series of sensors, where the series of sensors is in a substantially linear arrangement (see Fig. 3).

Regarding claim 9, Paradie et al. teaches at least three sensors at fixed intervals between each other in at least one sensor arrangement (Fig. 3, Ref. 301, 303, 305, and 307); at least one processor (Fig. 3, Ref. 309); and at least one outcome device (Fig. 3, Ref. 313); wherein at least three sensors sending input signals to the at least one processor (see paragraph 33); the at least one processor analyzing input signals from triplets of three adjacent sensors from the at least one sensor arrangement (see paragraph 33); the at least one processor sending output signals to the at least one outcome device (see paragraph 33); the at least one outcome device performing at least one action according to a set of predetermined rules (see paragraph 33).

Regarding claim 13, Paradie et al. teaches receiving signals from triplets of adjacent sensors as the objects passes by the sensors (Fig. 3, Ref. 301, 303, and 305 and paragraph 33), processing signals from the triplet of sensors (see paragraph 33), analyzing states of signals with respect to time to determine speed, direction (see paragraph 28), position (see paragraph 44), and

size (see paragraph 32) of the object, each sensor is simultaneously as the first, second, or third sensor for the sensor triplets (see Fig. 3) where the series of sensors is in a substantially linear arrangement (see Fig. 3).

Regarding claim 20, Paradie et al. teaches processing signals from a reference sensor (Fig. 3, Ref. 303) and two or more neighboring sensors (Fig. 3, Ref. 301 and 305), the neighboring sensors not immediately adjacent to the reference sensor, analyzing signals from the sensors to sense an object in motion along the sensors (see paragraph 33) and sending signals to at least one output device based on characteristics of motion of the object (see paragraph 33).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukumura et al. (US 2003/0074966) in view of Paradie et al.

Regarding claim 1, Fukumura et al. teaches receiving signals from the sensors as the object passes by the sensors (see paragraph 3) and processing signals to determine speed, direction, and position of an object (see paragraphs 6 and 7); the signals characterized by a sequence of a rising edge, an on state, a falling edge, and an off state (see paragraph 25), where the series of sensors is in a substantially linear arrangement (see figure 2).

Fukumura et al. does not teach determining the size of the object.

Paradie et al. teaches using a plurality of sensors to determine the size of an object (see paragraph 32).

It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Paradie et al. with the teachings of Fukumura et al. to determine the size of the object. The motivation for making this combination would be to better determine the position of the object if it is at close range (see Paradie et al., paragraph 34).

3. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paradie et al. in view of Motzko (US 6,272,443).

Paradie et al. teaches all of the limitations of claims 21 and 22 except the limitation that the interval between adjacent sensors may be from 16 to 30 centimeters.

Motzko teaches sensors spaced 30 centimeters apart (column 11, lines 61-62).

It would have been obvious to one skilled in the art at the time of the invention to combine the teachings of Motzko with the teachings of Paradie et al. to space the sensors 16 to 30 cm apart. The motivation for making this combination would be to have a relatively small distance between sensors to reduce influences of changes of speed at low speeds.

Allowable Subject Matter

4. Claims 4, 5, 7, 8, 10-12, and 14-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the indication of allowability of claim 4 is the inclusion of the limitation of the processor analyzing state of input signals from said pairs of sensors to determine the directions, positions along said series of sensors, speeds, sizes, and numbers of said objects in motion, said sizes of said objects being relative to said fixed distance between adjacent sensors. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 5 is the inclusion of the limitation of the processor sending output signals to at least one outcome device based on said directions, said positions, said speeds, said relative sizes, and said numbers of said objects in motion. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 7 is the inclusion of the limitation of analyzing signals from said pairs of adjacent sensors, whereby direction of object is forward if second sensor of each said sensor pair detects a rising edge state while first sensor of said sensor pair is in an on state, said second sensor remaining in on state until said first sensor returns to an off state, said sequential pairs of sensors displaying this pattern of signals in said direction of objection; where object has just cleared first sensor and where width of object w is greater than interval between sensors d . It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 8 is the inclusion of the limitation of analyzing signals from said pairs of adjacent sensors, whereby direction of object is reverse if first sensor of each said sensor pair detects a rising edge state while second sensor of

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said sensor pair is in an on state, said first sensor remaining in an on state until said second sensor returns to an off state, said sequential pairs of adjacent sensors displaying this pattern of signals in said direction of object where object has just cleared second sensor and where width of object w is greater than interval between sensors d . It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 10 is the inclusion of the limitation of the processor receiving input signals from a series of at least three sensors set at a fixed distance relative to each other, three adjacent said sensors forming a sensor triplet, said processor capable of: processing each sensor in said series of sensors as either the first, second or third sensor of said sensor triplets, and analyzing signals from said triplets of sensors to sense objects in motion along said series of sensors. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 14 is the inclusion of the limitation of the processing step further comprises analyzing signals from said triplets of sensors, whereby direction of said object is forward if first sensor senses object and before second sensor and where second sensor senses object before third sensor of said triplet of sensors. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

The primary reason for the indication of allowability of claim 15 is the inclusion of the limitation of the processing step further comprises analyzing signals from said triplets of sensors,

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whereby direction of said object is reverse if third sensor senses object before second sensor, and where second sensor senses object before first sensor of said triplet of sensors. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art of record that makes these claims allowable.

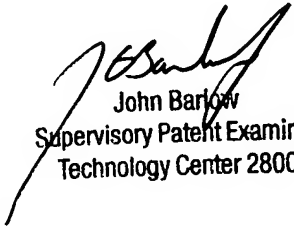
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meagan S Walling whose telephone number is (571) 272-2283. The examiner can normally be reached on Monday through Friday 8:30 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

msw


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